Cortex CX1 Detailed Installation Guide

Installing the Cortex meter video

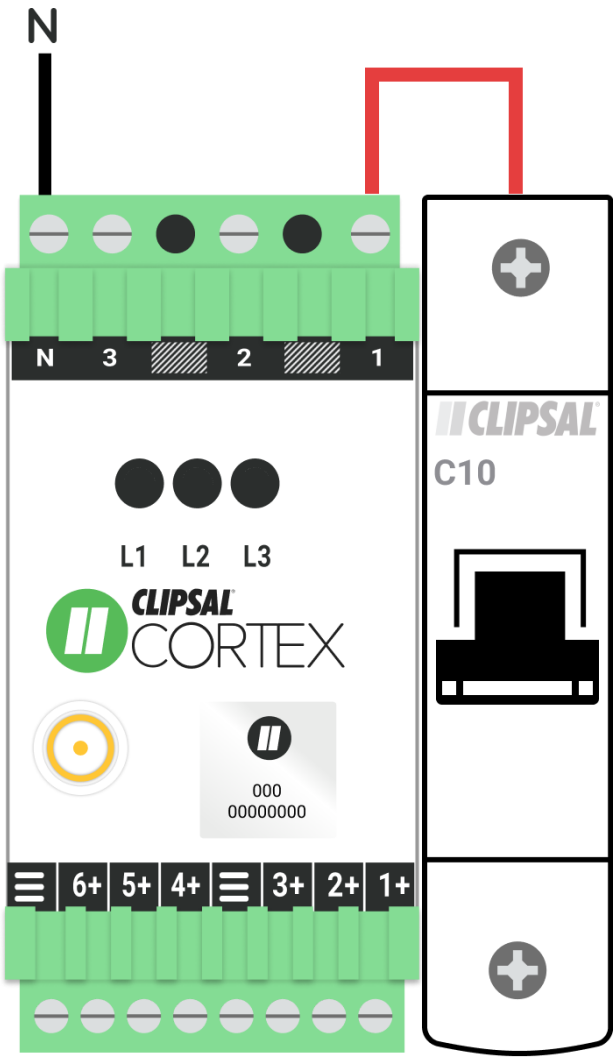
https://youtu.be/EOXd4MLV15s?si=WF6P9LVN9zAvlwAv

Connecting Voltage Terminal Block

Single-Phase

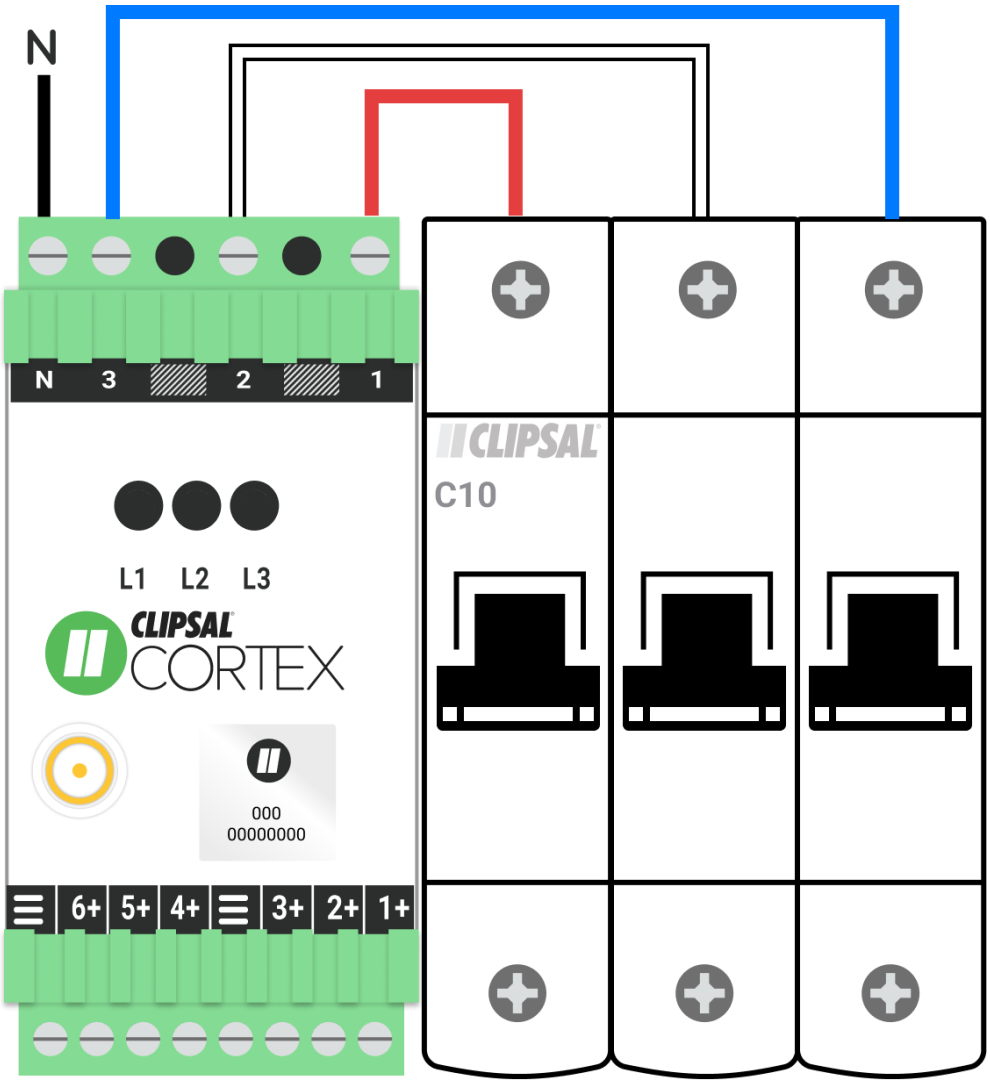
For single phase sites wire the Voltage Terminal as below, such that the Active Phase powers P1 and the Neutral is connected to the neutral terminal.

These tails should be wired to a breaker (maximum 10A) like below.



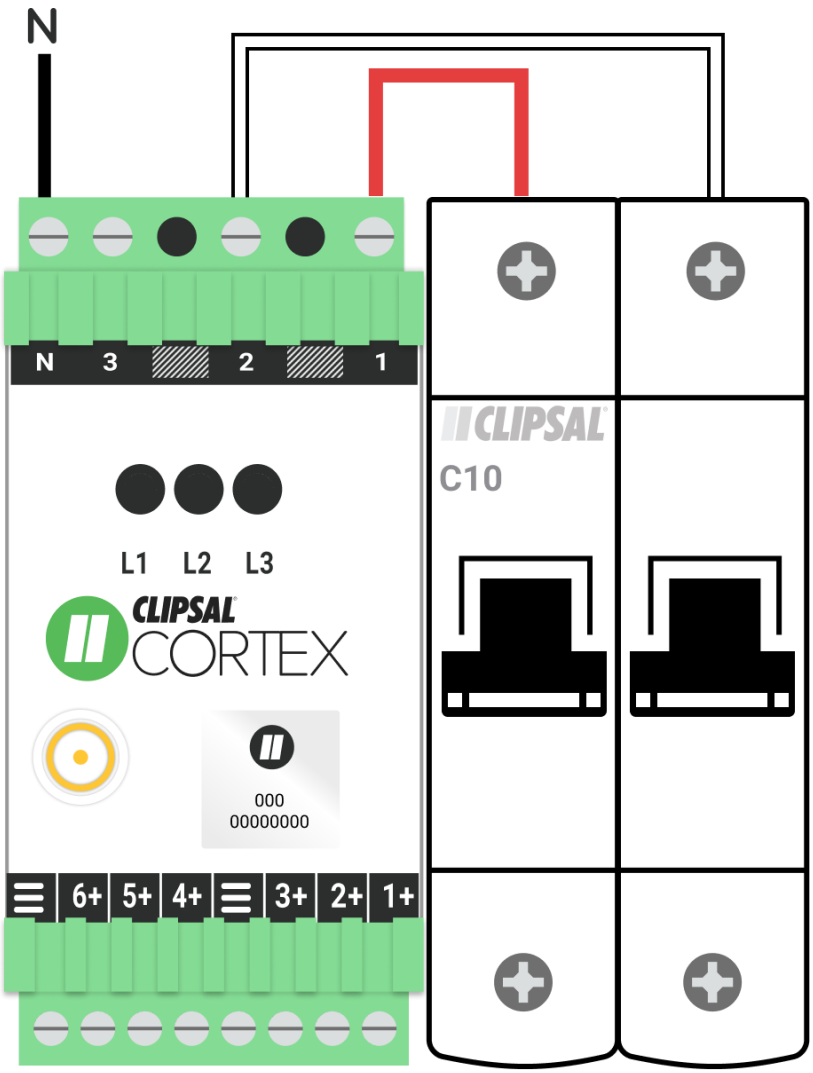
3-Phase

For three phase sites wire the Voltage Terminal as below, such that the Red Phase powers P1, White Phase powers P2 and Blue Phase powers P3. The Neutral is connected to the neutral terminal. These tails should be wired to a 3-Phase breaker (maximum 10A) like below:



2-Phase

For two phase sites wire the Voltage Terminal like below such that the Red Phase powers P1, and White Phase powers P2. The Neutral is connected to the neutral terminal. These tails should be wired to a 2-Phase breaker (maximum 10A) like below:

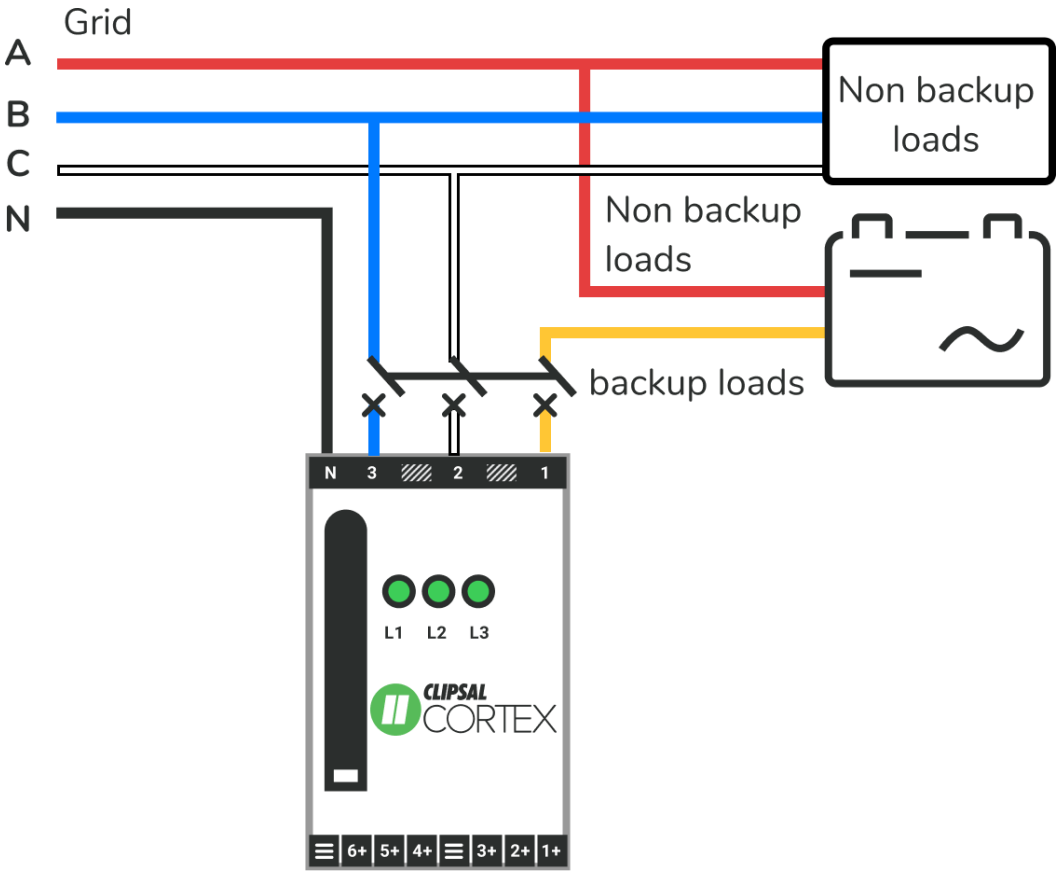


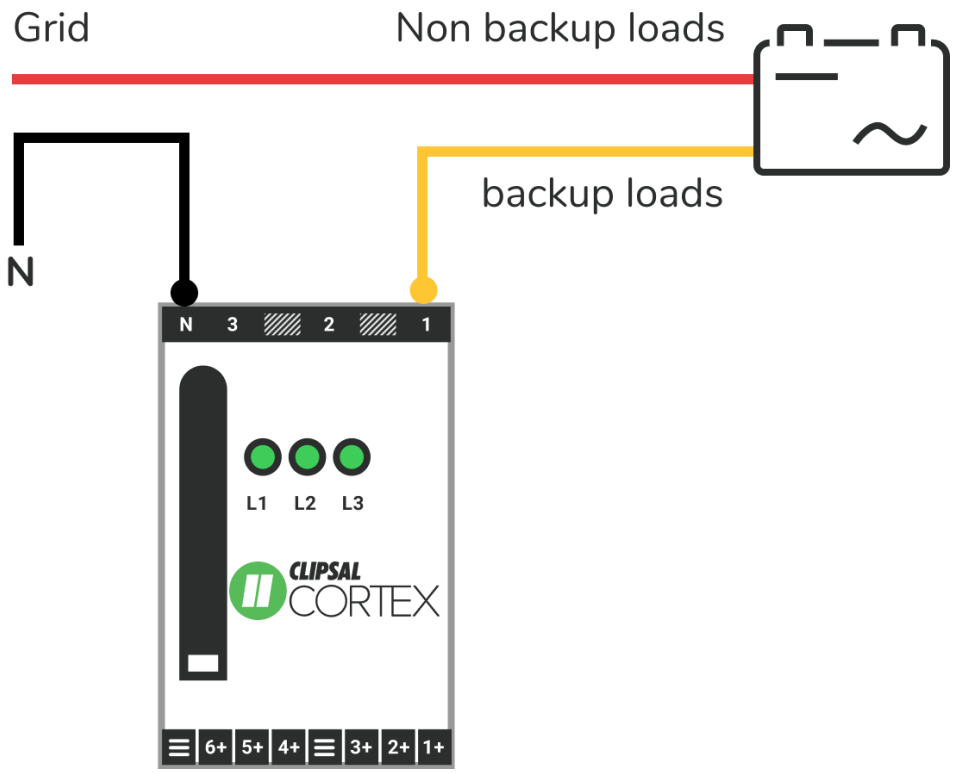
Sites with battery or generator backup

When wiring sites with battery backup it is important to wire P1 from a breaker onto the battery backup.

P1 provides power to the Cortex meter, if it is not wired to the battery backup the customer will lose monitoring in a blackout.

Cortex monitoring enables the client to remain within backup power specifications by monitoring load with accurate and real time data.


Grid
A
B
C
N
Non backup loads
Non backup loads
backup loads
N 3 2 1
L1 L2 L3
CLIPSAL CORTEX
6+ 5+ 4+ 3+ 2+ 1+


Grid
Non backup loads
backup loads
N
N 3 2 1
L1 L2 L3
CLIPSAL CORTEX
6+ 5+ 4+ 3+ 2+ 1+

Connecting CTs

Required Circuits to Measure

Each meter comes with 6 CTs to measure up to 6 circuits.

The circuits which are required to be measured to gain full functionality of the Cortex app are:

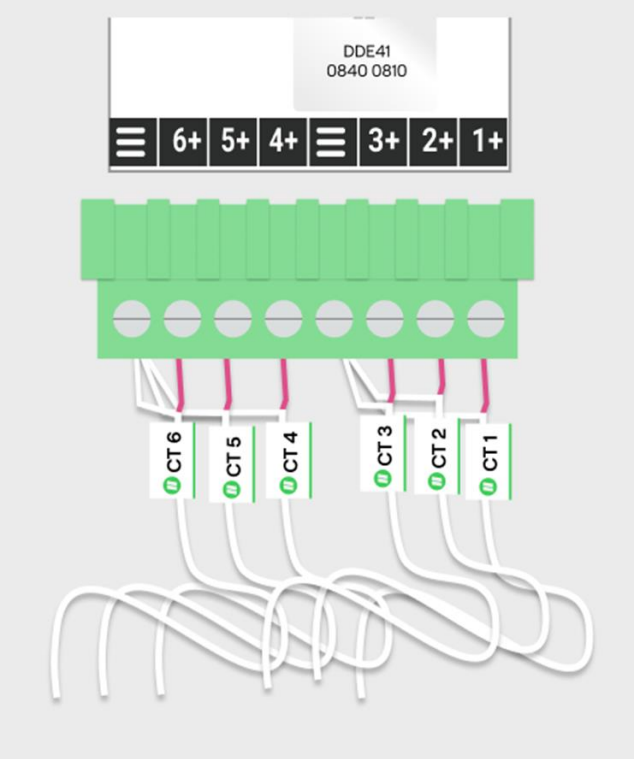
- All grid circuits (1 for single phase, 3 for 3 phase)
- All solar outputs (1 for each single-phase inverter, 3 for each 3-phase inverter)
- Controlled load (if customer has)
- Battery (if customer has)
- Backup or hybrid circuit (if customer has)

Once all the above circuits are measured it should be discussed with the customer what loads they also wish to measure. We recommend measuring larger loads, with a preference for loads the customer can change the time of day they are operating so they can gain more benefit out of the solar. Some examples are: Hot water, pool pumps, electric vehicle chargers and aircon.

Wiring CTs to CT Terminal Block

When wiring CTs to the CT Terminal Block the CTs should be labelled 1-6 from right to left when plugged into the meter. The pink CT wire is connected to the numbered terminal

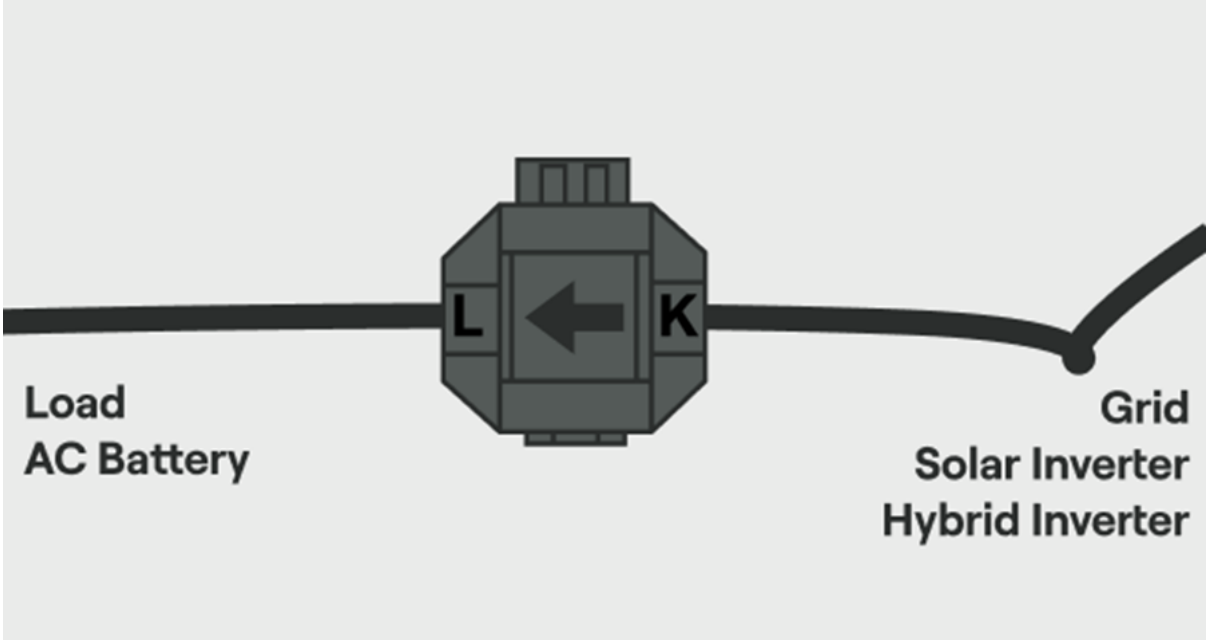
when the meter is plugged in, and the white CT wire is connected to the shared neutral.



Clamping CTs

- Clamp the CT on the active cable of the circuit you will be measuring.
- Make sure to give the CT a squeeze to ensure it has completely clicked closed.

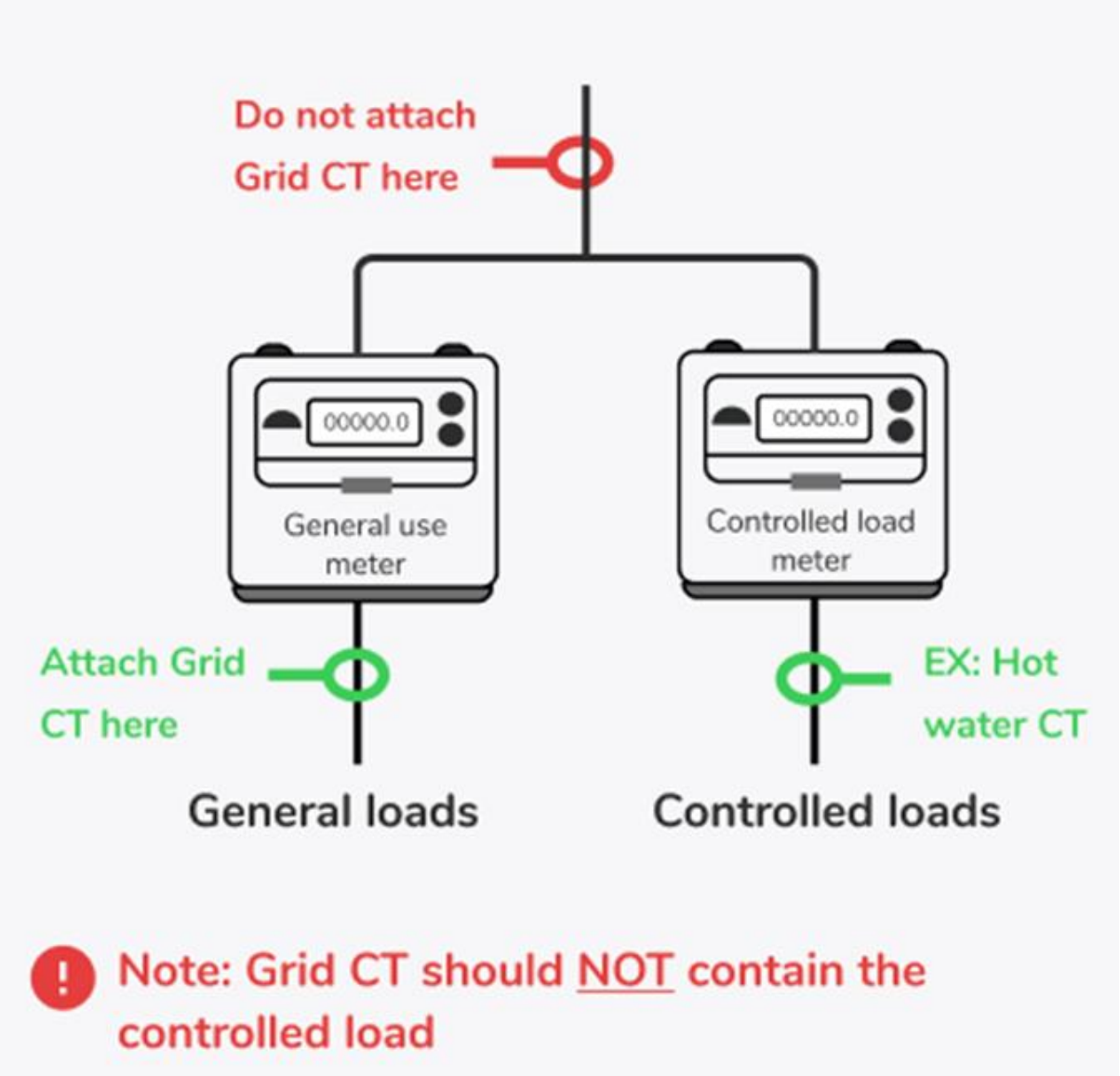
CT Direction



- When clamping the CTs to the loads to measure make sure to face the CT arrow in the right direction.
- If the CT is measuring a load or AC battery, the arrow should point towards the load or AC Battery.
- If the CT is measuring the grid, solar or hybrid inverter the arrow should point away from that power source.
- Once the meter is wired up its time to install the antenna, power it on and commission the site using the Cortex Fleet app.
- Please ensure that the CT wires are connected tightly and are no bare wires exposed which can cause a safety issue. When there is power running through the CT's, there is also a small voltage at the terminal block. However, if the wires become loose and create an open circuit, it causes the magnetic core to heavily saturate, inducing dangerously high voltages in the secondary winding.

Sites with Off-Peak Controlled Load

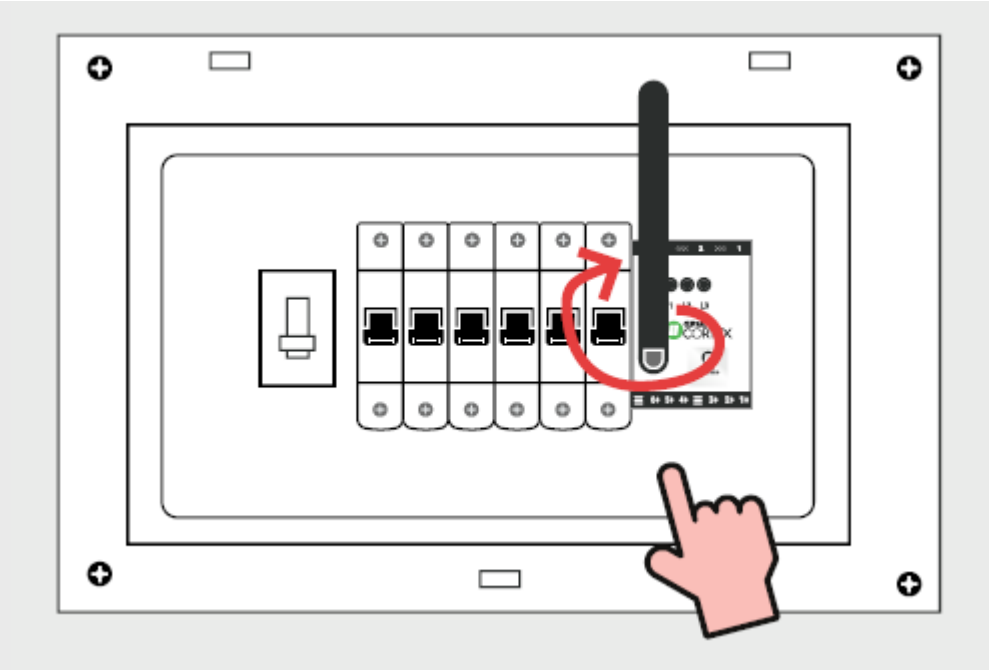
For sites with off-peak controlled loads, it is important to clamp the grid CT, so it does **not** contain the off-peak controlled load as shown below. Be sure to use a separate CT to monitor the off-peak load (failing to clamp this load will result in incorrect values in the app).



Once the meter is wired up its time to install the antenna, power it on and commission the site using the installer app

To install the antenna(s)

The meter comes standard with a SMA cellular antenna. This is easily screwed onto the meters face once you have closed the switchboard escutcheon.



If the switchboard is in a bad location or the site has low mobile reception an extended SMA antenna or a high gain SMA antenna can be used.